STATEMENT OF WORK
Grade Stabilization Structure (410)
Oklahoma

These deliverables apply to this individual practice. For other planned practice deliverables refer to those specific Statements of Work.

DESIGN

Deliverables:

1. Design documentation that will demonstrate that the criteria in NRCS practice standard have been met and are compatible with other planned and applied practices
   a. Practice purpose(s) as identified in the conservation plan
   b. List of required permits to be obtained by the client
   c. Compliance with NRCS national and state utility safety policy (National Engineering Manual (NEM) Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities 503.00 through 503.06 and NEM Oklahoma Supplement Part 503-Safety, Subpart A - Engineering Activities Affecting Utilities, OK503.02)
      - Oklahoma engineering worksheet *OK-ENG-45 Utilities Inventory Form* will be used to document utilities
   d. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
      i. Geology and Soil Mechanics (NEM Subpart 531a)
      ii. Hydrology
      iii. Hydraulics
      iv. Structural, Mechanical and Appurtenance
         - Earthfill and excavation quantities
         - Material quantities (conduits, rock, sand, anti-seep collars, fencing, signage, etc.)
         - Hazard classification documentation
      v. Vegetation requirements (see Critical Area Planting (342) Statement of Work)
      vi. Safety Considerations (NEM Part 503-Safety, Subpart B, 503.10 through 503.13).
2. Written plans and specifications including sketches and drawings shall be provided to the client that adequately describes the requirements to install the practice and obtain necessary permits
   - When applicable use the appropriate Oklahoma standard drawing or equivalent
     - Use Oklahoma standard drawings *OK-DWG-200 through OK-DWG-302a*
   - Site specific drawings and specifications shall be prepared by the designer for all other grade stabilization structures with special design configurations
3. Design Report and Inspection Plan as appropriate (NEM Part 511, Subpart B Documentation, 511.11 and Part 512, Subpart D Quality Assurance Activities, 512.30 through 512.32)
4. Certification that the design meets practice standard criteria and comply with applicable laws and regulations will be signed by an employee with appropriate approval authority for design assigned on Form OK-ENG-1 or OK-ENG-1 (NEM Subpart A, 505.3)
   - When applicable use the appropriate Oklahoma design data sheet, worksheet or equivalent
     - Oklahoma engineering worksheet *OK-ENG-12 Embankment Data Sheet* or equivalent will be will be used to document embankment structure design
   - Site specific designs where a standard design data sheet or worksheet is not available should be documented using the same format used on typical Oklahoma design data sheets
5. Operation and Maintenance Plan
6. Design modifications during installation as required

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INSTALLATION

Deliverables

1. Documentation of pre-installation conference with client and contractor
2. Verification that client has obtained required permits
3. Staking and layout according to plans and specifications including applicable layout notes
4. Installation inspection (according to inspection plan as appropriate)
    a. Actual materials used (Part 512, Subchapter D - Quality Assurance Activities, 512.33)
    b. Inspection records
    c. Maintaining a job diary with dates and record of inspections made, testing completed, instructions provided to the contractor, etc., to document compliance with standards and specifications. Documenting in the assistance notes in the plan is acceptable
5. Facilitate, implement and document required design modifications with client, original designer, regulatory and funding agencies
6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation
7. Certification that the installation process and materials meets design and permit requirements

CHECK OUT

Deliverables

1. Supporting documentation
    a. Completed job diary or assistance notes documenting inspections made, testing completed, materials used, etc.
    b. Survey notes for layout, inspections, and final checkout documenting compliance with standards and specifications for an embankment type structure
        i. Layout survey
            - Establish a temporary bench mark to reference the layout survey to
            - Profile preconstruction centerline profile for the entire length of the dam, extending across the proposed auxiliary spillway
            - Cross sections will be taken at each major break in land slope and at intermittent points as needed to obtain accurate yardage (cross section stations shall not exceed 50 feet)
            - Set temporary markers such as flags or stakes at each centerline station
            - Set temporary markers at points extended out from the centerline at each station where the fill slope zeros out at natural ground
            - Volume will be computed to the nearest cubic yard using an appropriate method of computation
        ii. Construction checks and inspections
            - As needed to insure installation is in compliance with standards and specifications
            - At a minimum a construction check survey and documentation will be required when the subgrade has been completed prior to placement of core backfill material, principal spillway structure placement and any other elevation dependent appurtenance

- Principal spillway installation may require full time inspection of the back fill placement

iii. Final checkout survey

- Profile the entire length of the dam including a cross section of the spillway along the extension of the centerline of the dam, taking profile shots at each layout station to determine the as-built elevations of the embankment and auxiliary spillway
- Cross section at least one section of the fill where it is least likely to meet specification. Check other cross sections, if needed, to determine whether specifications have been met. Document on the appropriate standard drawing, worksheet, engineering field book or equivalent

c. Survey notes for layout, inspections, and final checkout documenting compliance with standards and specifications for full flow open throat type structures

i. Layout survey

- Establish a temporary bench mark to reference the layout survey to
- Preconstruction centerline profile for the entire length of the channel or flow path
- Cross sections will be taken at the upstream and downstream end of the planned treatment area plus a downstream cross section to be used to determine backwater depth on the structure. Additional cross sections at each major break in land slope and at intermittent points may be needed to obtain accurate yardage
- Set temporary markers such as flags or stakes at each centerline station
- Set temporary markers such as flags or stakes at primary bottom and top locations of the designed structure and write the required cut or fill on each marker
- Set temporary markers at points extended out from the bottom where the cut and/or fill slopes zero out at natural ground
- Earthwork volumes will be computed to the nearest cubic yard using an appropriate method of computation

ii. Construction checks and inspections

- As needed to insure installation is in compliance with standards and specifications
- At a minimum a construction check survey and documentation will be required when the subgrade has been completed prior to placement of backfill material, structure placement and any other elevation dependent appurtenance
- Structure or appurtenance installation may require full time inspection

iii. Final checkout survey

- Profile the entire length of the channel or flow path across the structure
- Cross section the upper and lower end of the structure to determine the as-built elevations and dimensions of the structure
- Profile the entire length of the supporting embankments or berms including a cross section of the structure along the extension of the centerline of the embankment or berm, taking profile shots at each layout station to determine the as-built elevations of the embankment or berm
- Cross section at least one section of the embankment or berm where it is least likely to meet specification. Check other cross sections, if needed, to determine whether specifications have been

met. Document on the appropriate standard drawing, worksheet, engineering field book or equivalent

d. As-built drawings with changes from the original drawing clearly shown

e. Extent of practice units applied and location identified on a map

f. Vegetation certification or schedule documented on OK-ECS-04 – Vegetative Data Worksheet

g. Final quantities

2. Certification that the installation meets NRCS standards and specifications and is in compliance with permits will be signed by an employee with appropriate approval authority for construction assigned on Form OK-ENG-1, OK-ENG-1 a, or by special letter. (NEM Subpart A, 505.39(c)(1)) Document on the appropriate standard drawing, worksheet, engineering field book or equivalent

3. Progress reporting

REFERENCES

- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard – Grade Stabilization Structure, 410
- NRCS National Engineering Field Handbook (EFH)
- NRCS National Engineering Manual (NEM)
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook